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Tianjin Zhang
tz1659@rit.edu

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**An interactive memorial for healthcare
workers who lost their lives during the
COVID-19 pandemic**

by

Tianjin Zhang

A Thesis Submitted in Partial Fulfillment of the Requirements for the Degree of
Master of Fine Arts in Visual Communication Design.

School of Design
College of Art and Design

Rochester Institute of Technology
Rochester, NY
July 28, 2021

Committee Approval:

Adam Smith

Date

Associate Professor

Mike Strobert

Date

Senior Lecturer

Abstract

COVID -19 started spreading in the U.S. at the beginning of 2020. During 18 months of trauma, more than 3,600 U.S. health care workers perished on the frontline in the first year of the pandemic. We are losing our guardians who fight against the disasters and save human beings' lives. With deeply in pain the lost, survived people desire to remember and perpetuate the history. However, there is less data support to track health worker deaths in the nation, limited places to gather for the vigil, extend heartfelt condolences and remember the deceased. We want to know what health care workers have done to take care of their patients and let future generations remember those who put their life in harm's way to make today what it is. This project, which explores a new experience to remember and memorialize their stories, builds an interactive digital memorial that offers people a window to honor thousands of nurses, doctors, and support staffers' sacrifices during COVID -19. It helps us transform our private pain into public dignity and to carry forward the legacies of those we've lost.

Keywords

COVID - 19; Health care workers; Monument; Digital screen.

Problem and Solution Statement

The first U.S. Coronavirus case was confirmed by the CDC on January 21st, 2020.[1] After that, the virus, COVID-19, transmitted effectively to the rest of the nation. Over 180 million coronavirus cases have been confirmed, and more than 3 million deaths worldwide as of July 2021. This pandemic dominated 2020 and cases still rose in 2021.

The most vulnerable have suffered the most. In this fighting, we are protected by nurses, doctors, and caregivers who put themselves in grave danger to save human beings' lives. During 12 months of trauma, more than 3,600 U.S. health care workers perished on the frontline in the first year of the pandemic.[2] The data is from the project called "Lost on the Frontline " hosted by KHN and The Guardian. There is still no accurate count of covid deaths among front-line workers due to the absence of federal action. The following problem is people overlook their heroism and dignity. They aren't getting enough respect they deserve.

This is why we need to spotlight those national heroes' efforts. Their legacies deserve to be marked in history. Based on the research, some projects have been initiated to count the dead and present stories of those healthcare workers. More than that, on-site memorials start to be hosted in California which gather people together to outpour appreciation and respect.

However, there are still limited memorial services for people to know who we lost and their story behind. People like to visit the cemetery park or host a vigil because it brings a sense of ceremony. It's still not safe for any type of on-site memorial during the current situation. With new changes in the world today, how can the death data of healthcare workers be collected and displayed to more individuals? In which ways we can keep their lives matter and may their courage, compassion, and commitment continue to shine through us?

In order to figure out those problems, the project, which explores a new way to remember and grieve the lost, builds an interactive digit exhibit wall and an online platform that offers people a window to honor thousands of nurses, doctors and support staffers' sacrifices during COVID -19. It displays all the U.S. heroes' profiles and stories categorized by state. With a touchscreen interface, the video wall stands nearly 5 feet high, and stretches 7 feet wide. When people come to visit the exhibit, they can also send condolences to the deceased easily by using their own device. Though people still need to keep distance from each other currently, the online website provides a way to memorialize at any time and place. The combination of exhibit and online platform creates a fully immersive experience to memorial and show respect to those healthcare workers.

Main body text

I started the project by collecting the data of healthcare worker deaths. Based on the online research, the Guardian and KHN report, the most comprehensive count in the nation as of April 2021, shows that total 3607 US healthcare worker deaths are counted in the first year of the pandemic. It also reported the diverse range of frontline health workers, A majority of deceased healthcare workers identified as people of color.[3] The median age of death among healthcare workers is only 59 which is less than 78, the general population death age. About their occupation, nurses and support staff account for most deaths, Roughly one in three were nurses, but the total also includes physicians, pharmacists, first responders and hospital technicians, among others.[4] These data make me understand the composition of the industry and what situation they met when the pandemic came. With these valuable databases, I start to understand the potential audiences of my project.

I've interviewed 4 potential audiences to know their expectations related to this project. The first person is a student who got COVID-19 and recovered by herself. The second one had volunteer experience to help with COVID testing. The third is a nurse working in the emergency room. The last person was working from home during this pandemic. The reason why I choose them is because they present four different

types of life during the pandemic. Based on the different perspective, I can better understand how much people care about healthcare worker's deaths and what they want to know from this subject. I create a questionnaire from each of them. There are two key findings that I can use for seeking design opportunities. From the rating scale question, it shows all of them think it is important to memorialize healthcare workers who died on the frontline due to COVID-19 and they are interested to know their fighting stories. The multiple-choice question with a comment field shows Name, Photo, Date of death are the top 3 information the audience would like to know about healthcare workers.

Information design is one of the most important parts of this project. Based on online research and user interviews, I selected the information users care about most and prioritized them to make sure number one will stand out on visuals and users can easily get what they want. The workflow also had been tweaked a lot. In the final version, the healthcare workers' profiles are categorized by state. It provides an intuitive experience to find the one user cares about.

For the visual design, I start with moodboards. The exploration of visual design starts from "Soul", abstract human shadow, to "Galaxy", stars and nimbus. In the end I get inspiration from the environment in cemetery parks. The grave typography, the abstract tree, the carved effect and the vintage icon evoke people's emotion to the deceased. It is a fully immersive experience when they interact with the information.

The first screen will provide the audience an overview of the project, with account numbers in each state, which people care most about. It helps users easily start the workflow with their preference to avoid unnecessary information disturbing. After they click one of the states, a profile of the healthcare worker will pop up with the name, photo, their story and people's words. While browsing through, people can send a condolence message to this person. In the future release, they can also contribute this person with a virtual flower. By setting up their mobile device, they can type their words by using their own keyboard. After they finish, their message will be presented to the display screen instantly so that other people can see it. Those interactive features involve users in and give them an immersive memorial experience.

Conclusion

Memorials are an important part of every culture. We pay tribute to the lives lost and leave a permanent record for future generations and genealogy. According to psychologists, memorials help survivors to come out of the emotional shock in a fruitful manner.[5] By digging into this topic, I try to find the part where the current memorial can be improved. It is not only a project that attracts people's attention to the loss in the frontline during the COVID-19 pandemic, but a brand new memorial experience that breaks geometric restriction and has multiple device access points.

In this project, people can intuitively understand the distribution of deaths in the United States. They will also get a chance to read stories and extend condolences. The combination of exhibit and online platform creates a smooth experience as people move through the environment. Although hosting an exhibit brings a sense of ceremony, online experience is a more convenient and safe way to memorialize them and it keeps their spirit forever.

There still have design opportunities for future iterations. According to the evaluations and feedback, users can get a sense of the death numbers from this project. Most of them will only pick one or two profiles to go through and memorialize. As time goes by, they'll not remember or visit it again. Only people who lost their loved ones keep their memories. So designing something specifically for those who have a close relationship with the deceased is an opportunity to keep this project running, for example, building a long-term support community, or hosting personal space to record emotion, or even create a simulated character for spiritual sustenance. While this project can't profile every healthcare workers' death, it aims to make every person remember and grieve what they have done, and pass this legacy to the future.

Appendix A:

THE IMMORTAL PROBLEM

THE MOST
VULNERABLE HAVE
SUFFERED THE MOST.

Essential but undervalued

According to the data by KHN and The Guardian more than 3,600 U.S. health care workers perished on the frontline in the first year of the pandemic. [1] Due to the absence of federal action, there are no death tracking and accurate death numbers. People overlooked their heroism and dignity. They aren't getting enough respect they deserve.

1

THE IMMORTAL PROBLEM

THE MOST
VULNERABLE HAVE
SUFFERED THE MOST.

Limit memorial services

It's still not safe for holding any type of on-site memorial or vigil. It's hard to find a way to outpour appreciation and respect for the country's frontline heroes. People don't know who they are and what they've done to take care of their patients.

2

SOLUTION



The solution includes an exhibit wall and online platform that offers people a window to honor healthcare workers' sacrifices during COVID -19.

With a touchscreen interface, the video wall stands nearly 5 feet high, and stretches 7 feet wide. By interacting with full-canvas motion graphics, people have an opportunity to know their stories and extend condolences.

Though people still need to keep distance from each other, the online website provide a way to memorial them at any time and place.

3

SOLUTION



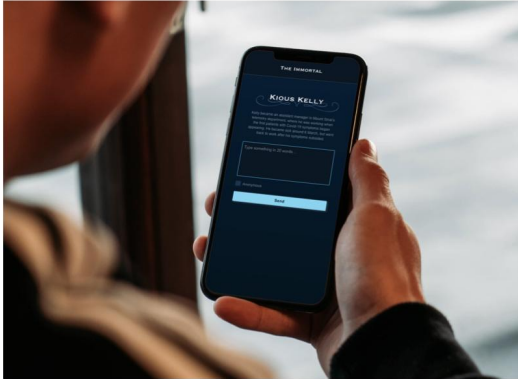
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Though people still need to keep distance from each other, the online website provide a way to memorial them at any time and place.

4

SOLUTION



For easily typing and sharing information, mobile connection was allowed when people visit the exhibit wall.

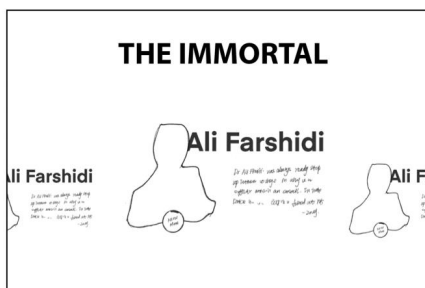
Visitors can set up their phones to gain a captive portal that allows for flawless integration with the interactive wall. When visitors want to send a condolence, a simple shake via their smartphones can support their journey as they move through the environment.

5

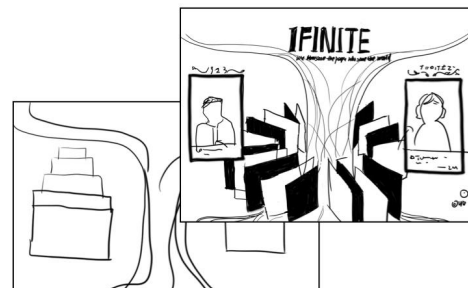
ITERATION

Workflow

The biggest difference is that the healthcare workers' profiles are categorized by state. It provides an intuitive experience to find the information user care about.



VS



6

ITERATION

Visual

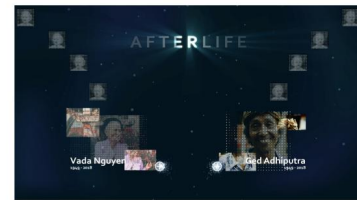
The exploration of visual design starts from "Soul", abstract human shadow, to "Galaxy", starts and nimbus. There is a glowing tree display on the final version which simulate cemetery park in the real world, so that user can have a fully immersive memorial experience.



Soul



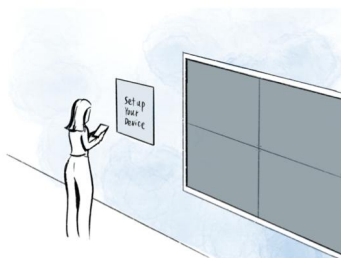
Galaxy



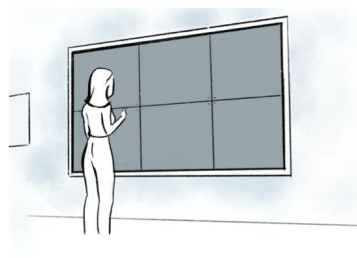
Galaxy II

7

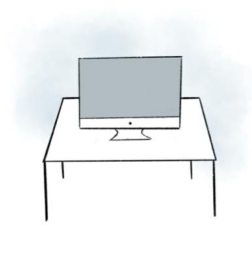
STORYBOARD



When visitors come to the exhibit, they need to sync their phone with The Immortal portal to access the mobile-connect feature.



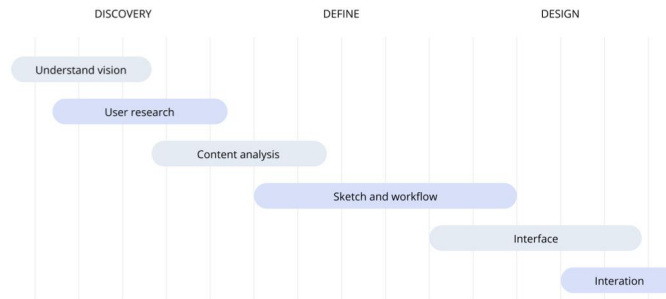
While interacting with the wall, visitors can extend their condolence by a simple shake of their smartphones, they can type and send their words easier.



The online platform enables people who can't present to the exhibit to access the information.





8

APPROACH



9

INTERVIEWS

| | | | |
|---|---|--|---|
|  <p>Joy A graduate student who tested positive and recovered</p> <p><i>I've done several covid testing and scheduled virtual appointments with my doctor.</i></p> |  <p>Wendy A volunteer experience to help with COVID testing</p> <p><i>I'd like to do something to help healthcare workers or at least fighting with the pandemic.</i></p> |  <p>Sue A nurse working in the emergency room</p> <p><i>I can't spend time with my friends and family. People I faced everyday are my co-workers and patients.</i></p> |  <p>Jacob A designer working from home during this pandemic</p> <p><i>I've watched the news about the lack of protect equipment for healthcare workers.</i></p> |
|---|---|--|---|

10

THE
IMMORTAL

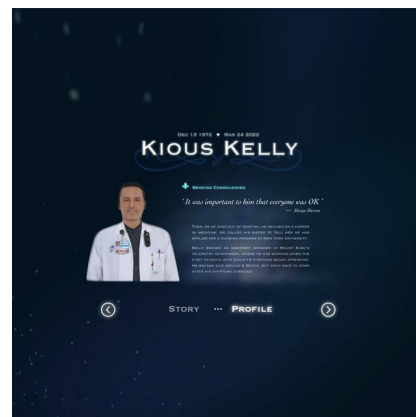
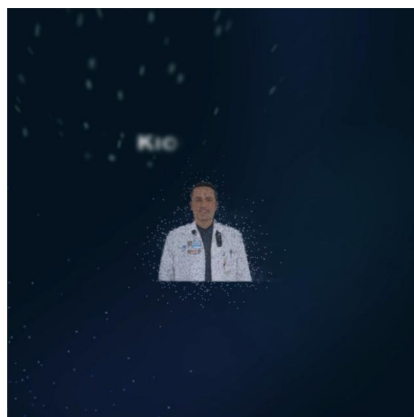
DESIGN



11

THE
IMMORTAL

DESIGN



12

THE
IMMORTAL

DESIGN



13

THE
IMMORTAL

DESIGN



Home

State Data

Profile List

Add

14

FEEDBACK

What worked?

The project attracts people's attention to the loss in the frontline during COVID-19 pandemic. People can intuitively understand the distribution of deaths in the United States. It is a great experience to know their stories and extend condolences to memorialize them. The combination of exhibit and online platform creates a smooth experience as people move through the environment. Although having an exhibit brings a sense of ceremony, having a website is a more convenient and safe way to memorialize them and it keeps their spirit forever.

What could have been better?

Do something specifically for people who have a close relationship with the deceased. Users can get a sense of the death numbers from this project. Most of them will pick one or two profiles to go through and memorialize. As time goes by, they'll not remember or visit it again. Only those people who lost their loved ones keep their memories. There are some design opportunities to keep this project running, for example, building a long-term support community.

15

SUMMARY



This project, which explores a new experience to remember and memorialize their stories, builds an interactive digital memorial that offers people a window to honor thousands of nurses, doctors, and support staffers' sacrifices during COVID -19. It helps us transform our private pain into public dignity and to carry forward the legacies of those we've lost.

16

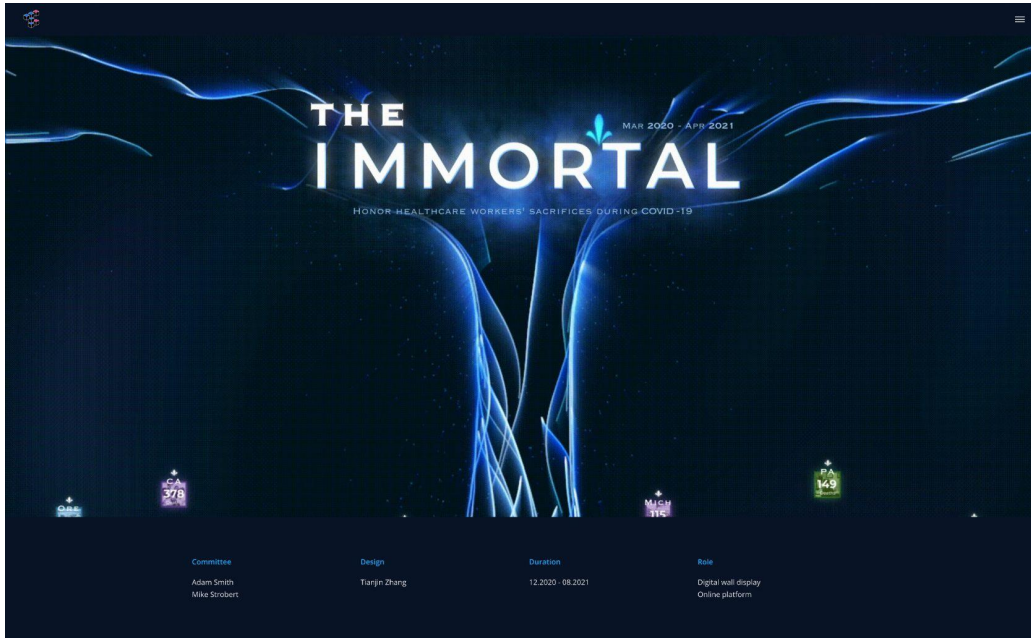
CITATION

[1] The Staffs of KHN and The Guardian, Christina Jewett. "Lost on the Frontline." *Kaiser Health News*, 22 Sept. 2020, khn.org/news/lost-on-the-frontline-health-care-worker-death-toll-covid19-coronavirus/.

Appendix B:

- [1] "A Timeline of COVID-19 Developments in 2020." AJMC, www.ajmc.com/view/a-timeline-of-covid19-developments-in-2020.
- [2] Spencer, Author(s): Jane. "12 Months Of Trauma: More than 3,600 US Health Workers Died IN Covid's First Year." *Lown Institute*, 12 Apr. 2021, lowninstitute.org/headlines/12-months-of-trauma-more-than-3600-us-health-workers-died-in-covids-first-year/.
- [3] Gold, Jessica. "We Need to Talk about the Covid-19 Deaths of Healthcare Workers." *Forbes*, Forbes Magazine, 22 Dec. 2020, www.forbes.com/sites/jessicagold/2020/12/22/we-need-to-talk-about-the-covid-19-deaths-of-healthcare-workers/?sh=2abc3bf53707.
- [4] "Why We're Tracking Every US Health Worker Who Dies FROM CORONAVIRUS." *The Guardian*, Guardian News and Media, 15 Apr. 2020, www.theguardian.com/us-news/2020/apr/15/why-were-tracking-every-us-health-worker-who-dies-from-coronavirus.
- [5] Heckenbach, R. (2012, June 2). Memorials blog. <https://www.memorials.com/blog/why-memorials-are-important/>.

Appendix C:



OVERVIEW

THE IMMORTAL, an interactive digital memorial that offers people a window to honor thousands of nurses, doctors, and support staffers' sacrifices during COVID-19.



PROBLEM

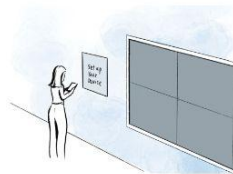
The most vulnerable have suffered the most.

Healthcare workers have been on the front lines of the global effort to care for patients with COVID-19 for 1 long year while putting themselves at risk for infection. During 18 months of trauma, more than 3,600 U.S. health care workers in the U.S. perished on the frontline. We are moving forward with the pain of loss. That's why we are eager to spotlight their selfless contribution and carry forward the legacies to inspire the next generation. But it's hard to achieve...



OUTCOME

The solution includes an **exhibit wall** and an **online platform**. It explores a new experience to remember and memorialize the deceased by two-way interaction. The touchscreen wall stands nearly 5 feet high and stretches 7 feet wide with full-canvas motion graphics to interact with. While the online website provides a more convenient experience to memorialize at any time and place.



When visitors come to the exhibit, they need to sync their phone with The Immortal portal to access the mobile-connect feature.



While interacting with the wall, visitors can extend their condolence by a simple shake of their smartphones, they can type and send their words easier.

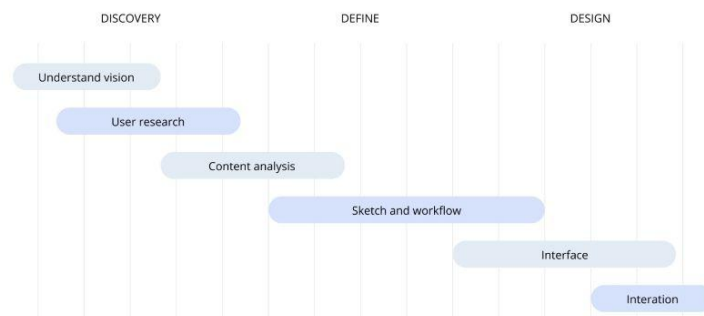


The online platform enables people who can't present to the on-site exhibition to access the information.

CHALLENGE



APPROACH



User research

In order to better understand how much people care about healthcare worker's deaths and what do they want to know from this subject, I've interviewed 4 potential audiences, they present four different types of life during the pandemic.

| | | | |
|--|--|---|---|
|  Joy A graduate student who tested positive and recovered <i>I've done several covid testing and scheduled virtual appointments with my doctor.</i> |  Wendy A volunteer experience to help with COVID testing <i>I'd like to do something to help healthcare workers or at least fighting with the pandemic.</i> |  Sue A nurse working in the emergency room <i>I can't spend time with my friends and family. People I faced everyday are my co-workers and patients.</i> |  Jacob A designer working from home during this pandemic <i>I've watched the news about the lack of proper equipment for healthcare workers.</i> |
|--|--|---|---|

Insights - Through the interviews, all of them agree that it is important to remember and memorialize healthcare workers who died on the frontline due to COVID-19 and their stories. The pandemic makes people feel isolated and death causes overwhelming pain. People want to pay tribute to the lives lost and leave a permanent record for future generations and genealogy. It's also a way to help people get community support, come out from grief, and build confidence to move forward. There are two needs that I want to dig more...

Need to death numbers and who we've lost

Need to outpour appreciation and respect

The following questionnaire shows **Name, Photo, Date of death** are the top 3 information the audience would like to know about healthcare workers. I prioritized all the information to make sure number one will stand out on visuals and users can easily find what they want.

Content analysis

The number of healthcare workers who have tested positive for the coronavirus is probably far higher than the reported tally of 9,200, and US officials say they have no comprehensive way to count those who lose their lives trying to save others. Lost on the frontline is a project that was initiated by the *Guardian* and *KHN* in the first year of the pandemic. This is the most comprehensive count in the nation as of April 2021. The data included identity, race, occupation, workplace, etc.

Several memorial activities have already been hosted digitally and physically. There is a traveling memorial that happened in California called *Forever Essentials*. It features seven towers with images of dozens of California healthcare workers who died of coronavirus. Moreover, it also has an online website to visit which allows users to add someone to this memorial.

OPPORTUNITY

How might we keep healthcare workers' lives matter?

How might we transfer the pain of loss to public dignity?

SOLUTION

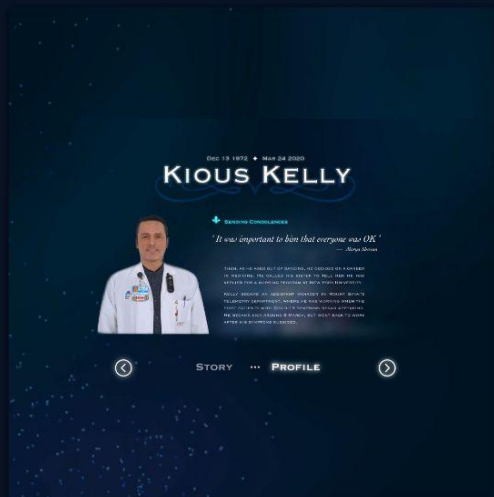
Display an exhibit wall that enables multiple touchpoints. Audiences can interact with the screen to explore the stories of healthcare workers.



Prioritize information

- feature -

Create a user-friendly Personal Profile by dividing all information into 2 sections. The hierarchy enables a readable and interactive Personal Profile.



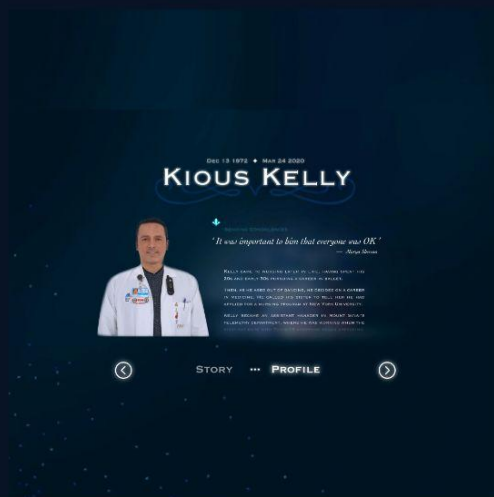
Story

Display the elements that the audience cares about most, Name, Photo, and Story.



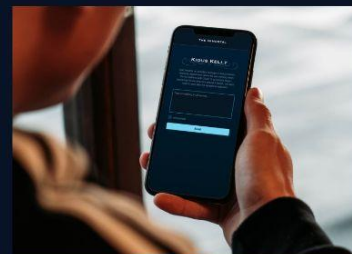
Profile

This section provides more basic information about the person. It makes the audience get closer to this person and be more empathetic.



Mobile connection

For easily typing and sharing information via the visitors' mobile device, the feature was been created. Visitors can set up their phones to gain a captive portal that allows for flawless integration with the interactive wall. When visitors want to send a condolence, a simple shake of their smartphones can support their journey as they move through the environment.



Online platform

feature

Display an interactive wall that enables multiple touchpoints. Audiences can interact with the screen to explore the stories of healthcare workers. By having an online platform, more people can access the information. It provides a digital experience that users can visit anytime anywhere. We want to keep their courage, compassion and commitment continue to shine through us.



Home

State Data

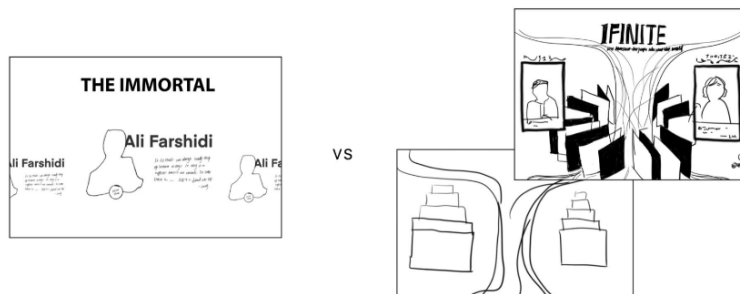
Profile List

Add

ITERATION

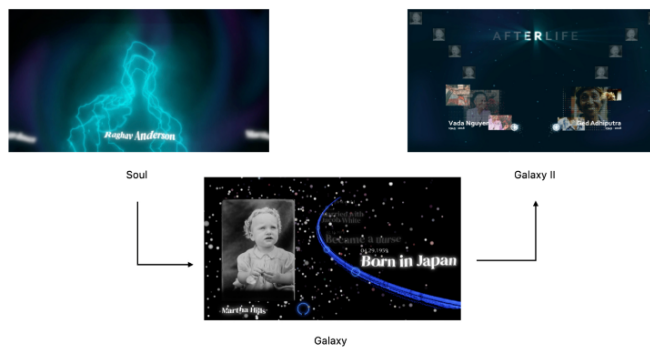
Workflow

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Visual

The exploration of visual design starts from "Soul", abstract human shadow, to "Galaxy", stars and nimbus. There is a glowing tree display on the final version which simulate cemetery park in the real world so that user can have a fully immersive memorial experience.



FINAL

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